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The Prevalence and Correlates of Postcoital Dysphoria in Women

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Abstract

This study examined the lifetime and 4-week prevalence of postcoital dysphoria (PCD) and its relationship with psychological distress and reports of past sexual abuse. Amongst 222 female university students, 32.9% reported having ever experienced PCD while 10% reported experiencing PCD in the previous four weeks. Multiple regression analyses revealed support for the hypothesis that lifetime and 4-week prevalence of PCD would be positively correlated with psychological distress. Lifetime prevalence of PCD, but not 4-week prevalence, correlated with reports of childhood sexual abuse. These factors explained only minimal variance in PCD prevalence, prompting further research into this significantly under-investigated sexual difficulty.

The Prevalence and Correlates of Postcoital Dysphoria in Women

Postcoital dysphoria (PCD) is the experience of negative affect following otherwise satisfactory sexual intercourse (Sadock & Sadock, 2008). Under normal circumstances, the phase following sexual activity is marked by sensations of well-being along with psychological and physical relaxation (Baldwin, 2001; Waldherr & Neumann, 2007). However, individuals who experience PCD may express their immediate feelings after sexual intercourse in terms of melancholy, tearfulness, anxiety, irritability or psychomotor agitation. Such individuals may wish to physically distance themselves from their partner and may even become verbally or physically abusive within the context of an otherwise satisfactory relationship.

Surprisingly, the phenomenon of PCD has not been widely studied and we have little knowledge of the prevalence and correlates of this disorder in males or females. Studies examining sexual dysfunctions in general estimate that their overall prevalence may be between 14% and 34% for men and between 33% and 43% for women (Dunn, Croft, & Hackett, 1998; Johnson, Phelps, & Cottler, 2004; Laumann, Paik, & Rosen, 1999). However, the studies which derive these estimates have so far failed to identify PCD as a sexual difficulty (e.g. Bancroft et al., 2003; Basson et al., 2003; Howard, O'Neill, & Travers, 2006; Nobre & Pinto-Gouveia, 2006; Sanders, Graham, & Milhausen, 2008).

In his commentary on the dearth of studies examining PCD, Friedman stated that "the research literature is virtually silent... but a Google search reveal[s] several Web sites and chat rooms for something called 'postcoital blues'." (2009, p. D6). Indeed, database searches of terms such as postcoital, coitus, sex, or intercourse in combination with dysphoria, blues, depression, sadness, melancholy and tearfulness yield no relevant literature. However, an internet search of these same terms will identify over 50,000 sites describing the personal experiences of individuals who have been troubled by PCD. Sadock and Sadock describe

PCD as a sexual dysfunction eligible for inclusion in the DSM as a ‘sexual disorder not otherwise specified’ (2008). Although mild sadness after sexual intercourse is not necessarily evidence of a dysfunction, individuals who present with symptoms of PCD experience a dysphoria which is too enduring and too intense to be dismissed as mere unhappiness (Friedman, 2009). Female clients within a clinical setting reportedly use a range of metaphors to describe their experience of distress following sexual intercourse, such as ‘feeling hollow’ or having a ‘black hole open up inside’, while others liken the experience to ‘homesickness’ or a ‘yearning for something which was missing’. Reported clinical experience with individuals partaking in consensual sexual intercourse, often within a stable relationship, suggests that the dysphoria always occurs afterwards and not before or during. The dysphoria can reportedly endure for over an hour and is not alleviated by their partner’s efforts to console them.

Psychological Well-being and Sexual Dysfunctions

Findings suggest that prevalence of sexual dysfunctions is higher amongst individuals who experience poor mental health (Baldwin, 2001; Bancroft et al., 2003; Cyranowski et al., 2004; Dennerstein, Guthrie, Hayes, DeRogatis, & Lehert, 2008; Montgomery, Baldwin, & Riley, 2002; West, Vinikoor, & Zolnoun, 2004). Sexual dysfunctions are more common amongst women who experience emotional and stress-related problems (Laumann et al., 1999). Indeed, sexual dysfunctions are recognised as a symptom of psychological distress and mood disturbances, such as in anxiety and depression disorders (Meana & Lykins, 2009; Montgomery et al., 2002). However, there is no current research on the link between PCD and mental health.

Research findings indicate that anxiety is correlated with reduced sexual desire and impaired sexual functioning (Beaber & Werner, 2009; Figueira, Possidente, Marques, & Hayes, 2001; Meana & Lykins, 2009; Meston & Bradford, 2007; van Minnen & Kampman,

2000). Findings also suggest that depressed mood amongst women is associated with sexual dysfunction, decreased libido, impaired sexual arousal, and reduced sexual and emotional satisfaction derived from intimate relationships (Angst, 1998; Baldwin, 2001; Bancroft et al., 2003; Bodenmann & Ledermann, 2007; Cyranowski et al., 2004; Graham, Sanders, Milhausen, & McBride, 2004). However, whether the aetiology of PCD involves a mechanism related to anxiety or generally depressed mood has not yet been determined.

Sexual Abuse and Sexual Dysfunctions

Several studies have found that there is an increased prevalence of sexual dysfunctions and difficulties amongst individuals who report having past experiences of sexual abuse (de Visser, Rissel, Richters, & Smith, 2007; Howard et al., 2006; Laumann et al., 1999; Najman, Dunne, Purdie, Boyle, & Coxeter, 2005; Sarwer & Durlak, 1996; van Berlo & Ensink, 2000). Research suggests that the prevalence of childhood sexual abuse in Australia is 35% amongst women and 16% amongst men (Dunne, Purdie, Cook, Boyle, & Najman, 2003; Najman et al., 2005).

These effects of sexual abuse are often profound and may endure for many years after the event (Gilbert & Cunningham, 1986; Laumann et al., 1999; van Berlo & Ensink, 2000). Researchers posit that women who have experienced sexual abuse associate later sexual encounters - even those which are consensual or occur within an intimate relationship - with the trauma of the abuse along with sensations of shame, guilt, punishment and loss; this association is purported to lead to sexual problems and the avoidance of sex (Gilbert & Cunningham, 1986; Sarwer & Durlak, 1996; van Berlo & Ensink, 2000). However, there is no literature on the relationship between prior experiences of sexual abuse and PCD.

Aim and Hypotheses

The current study examines the prevalence and correlates of PCD. This study had four aims: first, assessing the lifetime and 4-week prevalence of PCD amongst a sample of female

participants; second, determining the relationship between PCD and other more widely recognised sexual difficulties; third, identifying whether psychological well-being is correlated with PCD; and fourth, identifying whether reports of sexual abuse correlate with PCD. It is hypothesised that PCD will be associated with high scores on measures of psychological distress as well as with reports of experiencing sexual abuse during childhood and adulthood

Method

Participants

The sample consisted of a university sample of 222 female students who had been or were sexually active. As 386 questionnaires were distributed, the response rate for this sample was 57.5%. The age of participants ranged from 17 to 61 with a mean age of 24.37 years (*S.D.* = 8.23).

Materials

The Sexual Experiences and Attitudes Inventory (SEA-I) is a 67-item composite questionnaire which includes items from several established questionnaires. Demographic variables and background factors are examined, while two questions assess the prevalence of PCD over the lifetime and in the past four weeks, embedded within an 8-item scale which assesses the lifetime and 4-week prevalence of other sexual difficulties. Item wording was based on the diagnostic criteria for sexual disorders outlined in the DSM-IV-TR (APA, 2000) and the classifying definitions detailed by Basson and colleagues (2003), Meston and Bradford (2007), and Sadock and Sadock (2008). The Kessler Psychological Distress Scale (K10; Kessler et al., 2002) was also included as a means of examining psychological distress amongst participants. K10 items and those pertaining to sexual difficulties required responses on a 5-point Likert-type scale, from "*never*" to "*all of the time*".

Measures

Demographic and Background Questionnaire. Participant characteristics were measured using 13 items, replicating a previous protocol (Graham, Sanders and Milhausen 2006). These items examined: general health, religiosity, marital status, sexual relationship status, importance of sex, satisfaction with sexual experiences, sexual orientation and history of sexual abuse.

Lifetime and 4-week prevalence of overall sexual difficulties were assessed using eight items which examined: PCD, low or absent sexual desire, sexual aversion and dyspareunia. Four of the eight items investigated lifetime experience of each sexual difficulty (e.g. “Have there been any times in your life where inexplicable tearfulness or sadness following consensual sexual intercourse was a problem for you?”), while the remaining items investigated experience of sexual difficulties in the past four weeks. No items were included for assessing female orgasmic disorder and vaginismus, as there is insufficient consensus in the literature regarding the definition and conceptualisation of the female orgasm (Basson et al., 2003; Meston, Levin, Sipski, Hull, & Heiman, 2004; Levin & van Berlo, 2004) and the diagnostic criteria for vaginismus (Basson et al., 2003, Meston & Bradford, 2007). Discomfort or pain associated with vaginal entry could still be reported on items 16 and 20 (e.g. “Have there been any times in your life where the experience of pain from attempted or completed vaginal intercourse was a problem for you?).

The two questions used to assess history of sexual abuse were based on the wording used by de Visser and colleagues (2007) and Dunne et al. (2003), with a slight modification to capture differences between abuse experienced as a child and that experienced as an adult (“Before the age of 16, were you ever forced or frightened into doing something sexually that you did not want to do?” and “Since the age of 16, have you ever been forced or frightened into doing something sexually that you did not want to do?”).

Kessler Psychological Distress Scale (K10; Kessler et al., 2002). This 10-item questionnaire is used in screening for mental illnesses and severity of non-specific distress amongst participants, examining emotional, behavioural, cognitive and psychophysiological symptoms. The K10 focuses on the symptoms of major depressive disorder and generalised anxiety disorder (Andrews & Slade, 2001; Furukawa, Kessler, Slade, & Andrews, 2003; Kessler et al., 2002). The minimum score on the scale is 10, indicating no distress, while the maximum score of 50 indicates severe distress. Cronbach's alphas of .93 (Kessler et al., 2002; Kessler et al., 2003) and .87 (Baggaley et al., 2007) have been reported for the K10. Cronbach's alpha in this study was .85.

Procedure

Following ethical approval by the University Human Research Ethics Committee (Approval Number 0900000400), participants were approached as a group after routine university classes on campus. They were informed about the nature of the study, that involvement was voluntary and anonymous, that they could withdraw from the study at any time and that they were not obliged to respond to all questionnaire items. As a means of ensuring anonymity and confidentiality, participants were provided with an envelope in which their questionnaires could be placed upon completion. No identifying information was collected.

Results

Demographic and Background Characteristics

Table 1 shows the demographic and background characteristics of the sample. As the sample consisted entirely of female university students, all participants had entered at least a tertiary level of education. Approximately 35.5% of the sample reported that they followed a religion. In response to the two items on sexual abuse, 25.0% reported having been forced or frightened into an unwanted sexual act before the age of 16, while 21.8% reported this

occurring since the age of 16. Of the overall sample, 36.8% reported experiencing some form of sexual abuse while 10% reported experiencing both childhood sexual abuse and sexual abuse as an adult.

Table 1 goes about here

Table 2 presents scale summaries and relationship characteristics of the sample. The mean and standard deviation of scores on the K10 were comparable to those found in other nonclinical samples of women (Andrews & Slade, 2001).

Table 2 goes about here

Prevalence of Postcoital Dysphoria

Table 3 presents the prevalence estimates of PCD. Amongst this sample, 32.9% of women reported having experienced the symptoms of PCD at some point in their lives. Ten percent reported experiencing the symptoms of PCD during the four weeks prior to participating in the study.

Table 3 goes about here

Correlations between Postcoital Dysphoria and other Sexual Difficulties

Distributions of the raw data were examined for violations of statistical assumptions. The frequency of participant reports of having never experienced sexual difficulties caused substantial positive skew in the distributions of prevalence estimates. In order to reduce the impact of these reports, log transformations were applied to both the lifetime and 4-week prevalence estimates of all sexual difficulties. To fulfil the second aim of the study, Pearson correlation coefficients were computed between the transformed data for PCD and other sexual difficulties. These correlations are displayed in Table 4 and Table 5. All sexual difficulties were found to be modestly correlated.

Table 4 goes about here

Table 5 goes about here

Postcoital Dysphoria and Predictive Factors

Of the original 222 cases, two were excluded from data analyses owing to missing data on items assessing either childhood or adulthood sexual abuse. Outliers were detected through observation of a normal probability plot of the standardised residuals against the standardised predicted scores for the raw data. After a logarithmic transformation of prevalence data, Cook's scores and centred leverage values indicated that the outliers were not having an undue influence on the analysis. Observation of the pattern of residual scores suggested that a non-linear relationship may exist between the predictor variables and the data regarding lifetime and 4-week prevalence of PCD. Cross-checks of linear, quadratic and cubic regressions were conducted; however, the model data did not clearly support the superiority of non-linear regressions for analysing the data and thus linear multiple regressions were employed.

Postcoital Dysphoria Lifetime Prevalence. Currently, no theoretical framework has been established to suggest what factors may be associated with PCD and thus this study is exploratory. Standard multiple regressions analyses were used to determine which of the assessed variables would contribute to the model for predicting the lifetime prevalence of PCD.

The only background and demographic variables significantly associated with lifetime prevalence of PCD were reports of childhood sexual abuse, $r = .25$, $p < .001$, and reports of adulthood sexual abuse, $r = .15$, $p < .05$. Experiencing PCD was significantly correlated with higher levels of psychological distress, $r = .19$, $p < .005$. Table 6 shows the results of this analysis.

Table 6 goes about here

This model was found to be significant, $F(3, 216) = 7.43$, $p < .001$, and explained 9.4% of the variance in lifetime prevalence of PCD amongst this sample. Reports of having

experienced childhood sexual abuse and reports of higher levels of psychological distress were the significant predictors in the model, uniquely explaining 4.1% and 2.5% of the variance respectively.

Postcoital Dysphoria 4-week Prevalence. A preliminary standard multiple regression analysis was used to identify variables which would not contribute to the model for predicting the prevalence of PCD over a 4-week period. It was revealed that none of the demographic or background variables had a significant relationship with 4-week prevalence of PCD. However, the 4-week prevalence of PCD was significantly correlated with higher levels of psychological distress, $r = .16$, $p = .05$. Thus, psychological distress was entered into the model for predicting the 4-week prevalence of PCD. The results of this analysis are presented in Table 7.

Table 7 goes about here

This model was found to be significant, $F(1, 220) = 5.37$, $p < .05$. However, it only explained 2.4% of the variance in the 4-week prevalence of PCD in this sample.

Discussion

This study, the first to systematically examine the phenomenon of PCD, had four primary aims; first, it aimed to determine the lifetime and 4-week prevalence of PCD; further, it sought to examine the relationship between PCD and (a) other sexual difficulties, (b) measures of psychological well-being and (c) reports of past experiences of sexual abuse. It was hypothesised that the lifetime and 4-week prevalence of PCD would be positively correlated with psychological distress. It was also hypothesised that PCD would be positively correlated with reports of having been sexually abused in childhood and in adulthood.

The findings of this study indicate a lifetime prevalence rate of 32.9% for PCD amongst a sample of 222 female participants. This is based on women's reports of having ever experienced, at some point in their lives, inexplicable tearfulness or sadness following

consensual sexual intercourse at least *a little of the time*. Almost 10% of the overall sample indicated that they had experienced the symptoms of PCD *some of the time* or *most of the time*.

Estimates of the prevalence of PCD in the four weeks prior to completion of the questionnaire were also obtained. Experiencing the symptomatology of PCD at *a little of the time* in the past four weeks was reported by 6.3% of women. Almost 4% indicated that they had experienced PCD either *some of the time* or *most of the time*. Although these figures do not approach the prevalence rates of other sexual problems reported in this study, they are still higher than one might expect of a phenomenon which has received so little attention in the research literature.

Owing to the exploratory nature of this study, it was necessary to determine whether PCD is a unique construct or whether it is the symptomatic manifestation of an underlying sexual difficulty. By definition, PCD occurs after sexual intercourse which is otherwise satisfying; nevertheless, the presence of other sexual difficulties was explored as comorbidity is a recognised feature of sexual dysfunctions and difficulties (APA, 2000; Dunn et al., 1998; Johnson et al., 2004; Laumann et al., 1999; Meston & Bradford, 2007). Indeed, Baldwin (2001) states that when sexual response in one domain is affected, it is likely that other facets of sexual function will also be impaired. This being the case, the relationship between PCD and other sexual difficulties, including reduced or absent sexual desire, aversion to sex and pain during intercourse, was assessed. Correlations existed between all sexual difficulties, with the majority of these associations being small in size. The failure to find any correlations above .49 between PCD and more extensively researched sexual difficulties indicate that PCD is a largely independent phenomenon.

The association between PCD and the symptoms of sexual aversion disorder was moderate in contrast to the small associations found between PCD and other sexual difficulties. The

relationship between PCD and sexual aversion needs to be examined in the context of women's emotional response to sexual intercourse. In a subgroup of women there may well be a feeling of anxiety and disgust toward sexual intercourse which is associated with the presence of another sexual difficulty. In this subgroup, if sexual intercourse is followed by psychological and emotional distress then it logically follows that an aversion toward sexual activity could develop. It is also possible that, in other cases, PCD may lead to diminished or absent desire for sexual activity. For some individuals who experience dyspareunia, distress after sexual intercourse may be an emotional response to physically painful sexual activity. However, causation cannot be inferred from the data and a circular relationship may exist between PCD and other sexual difficulties. The findings of this study suggest that in exploring or drawing inferences from the data regarding PCD and other sexual difficulties, one must aim to isolate genuine cases of PCD from those where the dysphoria is merely a symptom of another sexual difficulty. At the same time, one must also seek to identify whether an aversion toward or a reduced desire for sex is genuinely associated with the sexual act or is simply an artefact of attempts to avert dysphoria after sexual intercourse.

Modest support was found for the hypothesis that women who experienced poor psychological well-being would be more likely to report having experienced PCD. However, the role of psychological distress in PCD was very limited. The amount of variance explained by this factor was only 2.5% and 2.4% for lifetime and 4-week prevalence estimates respectively. Although these figures reach statistical significance, they may have very limited clinical relevance. The findings suggests that although there are women for whom the experience of PCD is related to non-specific psychological distress, for the majority of women PCD is largely unrelated to their psychological well-being in other areas. This draws attention to the unique nature of PCD, where the melancholy is limited only to the period following sexual intercourse and the individual cannot explain why the dysphoria occurs.

While PCD was found to be significantly associated with reports of childhood sexual abuse, such was not the case for adult sexual abuse. Still, even reports childhood sexual abuse uniquely explained only 4.1% of the variance in the model.

Statistically, the likelihood of experiencing PCD was greater amongst individuals who experienced poor psychological well-being and reported past experiences of sexual abuse. However, although the correlations between these factors and PCD had statistical significance, the clinical significance is questionable. In estimating the prevalence of PCD, the amount of variance explained by the psychosocial factors assessed in this study was only marginal and may have little relevance to the majority of women who experience PCD.

The psychosocial variables assessed in this study may not be the most crucial factors involved in explaining PCD and determining individuals who are most at risk of experiencing the phenomenon. Indeed, individuals who present with the symptoms of PCD often do not demonstrate any other forms of psychological distress or an attitude of inhibition toward sexual activity (Friedman, 2009). Besides the intense dysphoria which follows sexual intercourse, these individuals do not exhibit any other signs to suggest that they experience poor mental health; however, it must be acknowledged that ‘intense’ dysphoria may not have been the usual experience of individuals in this study.

The presence of sexual difficulties is not necessarily indicative of an underlying psychological problem (Friedman, 2009). Friedman speculated that individuals who experience PCD may be prone to particularly strong rebound activity in the amygdala after achieving orgasm and that if the intensity of their sexual response is reduced, the subsequent dysphoria may also be less intense. This has led to his investigation of the use of pharmacological management of PCD.

Limitations

This paper was part of a larger study of sexual difficulties experienced by women and had a number of limitations. The data gathered specifically on PCD was based on self-reported answers to two questions concerning the estimated frequency of symptoms. The responses do not in themselves constitute a diagnosis of a sexual dysfunction as would be described in the DSM-IV-TR (APA, 2000; Meana & Lykins, 2009). Furthermore, the individual's experience of distress relating to their sexual functioning is a diagnostic criterion in the DSM-IV-TR and has been found to be an important factor in differentiating between women with conceptually defined 'sexual problems' and those who actually perceive their sexual difficulties as being dysfunctional (Bancroft et al., 2003; Basson et al., 2003; Dennerstein et al., 2008; Howard et al., 2006; Prause & Graham, 2007). The questions on PCD and other sexual difficulties used in this study, based on those used by de Visser and colleagues (2007) and Dunne et al. (2003), ask participants when the difficulty was a problem for them but do not specifically ask whether any sexual difficulties experienced were distressing; this may have inflated prevalence estimates. Future research should also determine the intensity of the dysphoria in the cases where individuals report having experienced PCD.

A further limitation of this study was the response rate. The proportion of women who returned a completed questionnaire in this study was 57.5%; slightly below the generally observed response rates of approximately 60% reported for studies of this nature (Dunne et al., 2003; Purdie, Dunne, Boyle, Cook, & Najman, 2002). Low response rates are a known problem in studies relying on volunteer samples, particularly so for studies researching sexuality (Purdie et al., 2002; Najman, Dunne, & Boyle, 2007). Researchers must question how volunteers differ from non-volunteers in studies of sexual functioning and whether findings based on volunteer responses can be generalised to the rest of the population (Dunne, 2002; Janssen, 2002; Wiederman, 1999). In comparisons of volunteers and non-volunteers in sexuality research, it has been found that volunteers are more prone to risk

taking, display less sex-related guilt, have less traditional attitudes toward sex, have higher sexual self-esteem, are predisposed toward sexual sensation seeking and have more sexual experience (Purdie et al., 2002; Strassberg & Lowe, 1995; Wiederman, 1999). Researchers acknowledge that individuals who experience sexual difficulties may be less likely to respond to questionnaires which assess sexual functioning (Dunn et al., 1998). It may be the case that the individuals who were most troubled by PCD or other sexual difficulties were the least likely to participate in this study.

The data gathered in this study relied exclusively on self-report, a method of data collection known to have problems regarding participants' ability to accurately recall personal information, capacity for insight into their own attitudes and behaviours, and tendency to consciously or unconsciously distort responses in order to present themselves as more socially desirable (Hegarty & Bush, 2002; Meston & Heiman, 2000; Wiederman, 2002). Prevalence estimates of sexual dysfunctions and difficulties are known to vary depending on the assessment measure used (Baldwin, 2001; Dennerstein et al., 2008). No assessment items have been established for gathering data regarding PCD and thus future research may find variations in prevalence estimates which are attributable to differences in methodology rather than participant characteristics. Furthermore, this study relied on a sample of university students and the findings of such convenience sampling may not be generalisable to the wider population (Sanders et al., 2008; Stevenson, 2002; Wiederman, 1999).

Conclusions

The findings of this study suggest that a proportion of women experience PCD and that this phenomenon may be more prevalent than might be suggested by the absence of research in this area. Psychological distress and reports of past sexual abuse were found to be modestly associated with PCD. However, the small amount of variance in PCD explained by

these factors suggest that other variables, or even a biological predisposition, may be more important in understanding the phenomenon and identifying women at risk of experiencing PCD. This possibility needs to be explored in future research using larger sample sizes, non-university student samples, and valid, reliable scales for assessing PCD. Our understanding of PCD may benefit most at this stage from qualitative studies and structured interviews with individuals who experience the phenomenon, allowing for the gathering of more enriched information than that which can be acquired through quantitative research.

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